UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

NMFS Tracking
No. 2004/00147

October 4, 2004

Mr. Lawrence Evans
U.S. Army Corps of Engineers (COE)
ATTN: CENWP-OP-GP
Post Office Box 2946
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for The Port of Wahkiakum No. 2 Puget Island Boat Ramp (170800030504, Lower Elochoman River).

Dear Mr. Evans:

The enclosed document contains a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the proposed Puget Island Boat Ramp Project, Lower Columbia River, Wahkiakum County, Washington. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed salmon and steelhead species found in table 1, and is not likely to jeopardize the continued existence of candidate Lower Columbia coho (*Oncorhynchus kisutch*). As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This document also contains a consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR Part 600). NOAA Fisheries concludes that the proposed action will adversely affect designated EFH for chinook (*O. tshawytscha*) and coho salmon.

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While the proposed action may adversely affect EFH, NOAA Fisheries believes that the conservation measures incorporated into the project by the COE to address ESA concerns already minimize these effects to the maximum extent

practicable and are sufficient to conserve EFH. Therefore, conservation recommendations are not required.

If you have any questions please contact Scott E. Anderson of the Washington State Habitat Office at (360) 753-9456 or scott.anderson@noaa.gov

Sincerely,

for Michael R Course

D. Robert Lohn
Regional Administrator

Enclosure

cc: Karla Ellis, COE, Portland
Steve McClain, Port of Wahkiakum

Endangered Species Act - Section 7 Consultation
Biological Opinion
And
Magnuson-Stevens Act
Essential Fish Habitat Consultation

Wahkiakum Port District No. 2 Puget Island Boat Ramp
Columbia River, Wahkiakum County, Washington
HUC 170800030504, Elochoman

Agency:	U.S. Army Corps of Engineers
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date:	October 4, 2004
Issued by:	for D. Robert Lohn Regional Administrator
NMFS Tracking No.	2004/00147

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INTRODUCTION

This document contains a Biological Opinion (Opinion) produced according to section 7(b)(3) of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531), as amended. The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with the NOAA's National Marine Fisheries Service (NOAA Fisheries) and United States Fish and Wildlife Service (together "the Services"), as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species, or destroy or adversely modify their critical habitat, if designated. The Opinion below is based on an interagency consultation pursuant to section 7(a)(2) of the ESA and implementing regulations at 50 CFR 402.

This document also contains the conclusions produced in an Essential Fish Habitat (EFH) consultation as required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 *et seq.*). The MSA established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (section 305(b)(2)).

The United States Army Corps of Engineers (COE) proposes to issue permits to the Port of Wahkiakum No. 2 (Port) for a public boat ramp, pier, and float on Puget Island, Wahkiakum County, Washington. The COE is proposing the action according to its authority under section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and section 404 of the Clean Water Act (33 U.S.C. 1344). The project will occur within the geographic range of 12 ESA listed species and one candidate species, Lower Colombia coho salmon (*Oncorhynchus kisutch*). These species, along with listing status, critical habitat, and biological references are listed in Table 1. Lower Columbia coho is an Evolutionarily Significant Unit (ESU) of O. kisutch. An ESU is considered a genetically identifiable component of a species that may be protected under the ESA. This action will also be located within the designated EFH for chinook (*O. tshawytscha*), and coho.

Background and Consultation History

On February 12, 2004, NOAA Fisheries received a letter from the COE requesting formal consultation pursuant to section 7(a)(2) of the ESA, and EFH consultation pursuant to section 305(b)(2) of the MSA for the Port of Wahkiakum No. 2 public boat ramp project on Puget Island, Wahkiakum County, Washington. NOAA Fisheries deemed the initiation package incomplete and sent a letter to COE on March 24, 2004, requesting more information. Subsequent correspondence throughout April and May created a complete initiation package including a Biological Assessment (BA). NOAA Fisheries initiated formal consultation under ESA and MSA on May 7, 2004. In the BA, the COE determined the proposed action was likely to adversely affect the following ESA-listed and candidate salmon and steelhead: Snake River (SR) steelhead (*O. mykiss*), Upper Columbia River (UCR) steelhead, Middle Columbia River (MCR) steelhead, Upper Willamette River (UWR) steelhead, Lower Columbia River (LCR)

steelhead, SR spring/summer chinook salmon (*O. tshawytscha*), SR fall-run chinook salmon, UCR spring-run chinook salmon, UWR Chinook salmon, LCR chinook salmon, Columbia River (CR) chum salmon (*O. keta*), SR sockeye salmon (*O. nerka*) and candidate LC coho (*O.kisutch*) The COE also found the proposed project may adversely affect designated EFH for chinook and coho salmon. This document is based on information provided in the BA, EFH assessment, email correspondence, letters, and additional information. All correspondence is documented in the administrative record, located at the Washington State Habitat Office, Lacey, Washington.

Table 1. Threatened and Endangered Pacific Salmon under NOAA Fisheries' Jurisdiction in the Columbia River Basin

Evolutionarily Significant Unit	Final Rule E=Endangered T=Threatened	Critical Habitat (Final Rule)	Protective Regulation (Final Rule)
UCR spring chinook salmon	E: March 24, 1999; 64 FR 14308	N/A	ESA section 9 applies
SR Fall-run chinook salmon	T: April 22, 1992; 57 FR 14653 (see correction June 3, 1992, 57 FR 23485)	December 28, 1993; 58 FR 68543	April 22, 1992 57 FR 14653
SR spring/summer-run Chinook salmon	T: April 22, 1992; 57 FR 14653 (see correction June 3, 1992, 57 FR 23485)	October 25, 1999; 64 FR 57399	April 22, 1992 57 FR 14653
UWR chinook salmon	E: March 24, 1999; 64 FR 14308	N/A	July 10, 2000 65 FR 42422
LCR chinook salmon	T: Feb. 16, 2000; 65 FR 7764	N/A	July 10, 2000 65 FR 42422
SR Basin steelhead	T: August 18, 1997 62 FR 43937	N/A	July 10, 2000 65 FR 42422
MCR steelhead	T: March 25, 1999; 64 FR 14517	N/A	July 10, 2000 65 FR 42422
UWR steelhead	T: March 25, 1999; 64 FR 14517	N/A	July 10, 2000 65 FR 42422
LCR steelhead	T: March 19, 1998; 64 FR 13347	N/A	July 10, 2000 65 FR 42422
UCR steelhead	T: August 18, 1997 62 FR 43937	N/A	ESA section 9 applies
CR chum salmon	T: March 25, 1999; 64 FTR 14508	N/A	July 10, 2000 65 FR 42422
SR sockeye salmon	E: November 20, 1991 56 FR 58619	December 28, 1993; 58 FR 68543	ESA Section 9 Applies
LCR coho salmon*	Proposed	N/A	N/A

**LCR coho were proposed for listing June14, 2004; 69 FR 33101.*

Description of the Proposed Action

Proposed actions are defined in the Services' consultation regulations (50 CFR 402.02) as "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas." Additionally, the MSA at 16 U.S.C. 1855(b)(2) defines a Federal action as "any action authorized, funded, or undertaken or

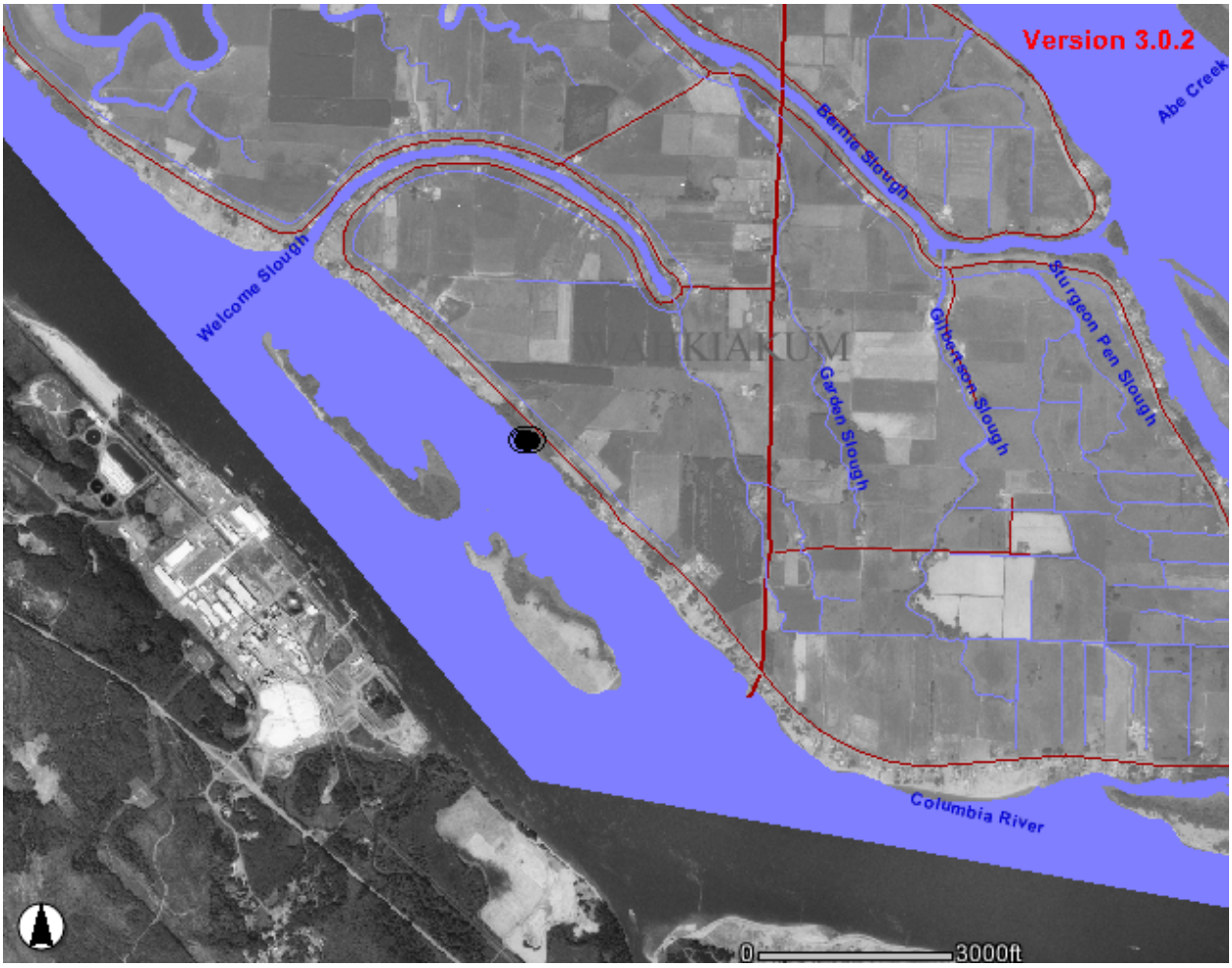
proposed to be authorized, funded, or undertaken by a Federal agency." The COE proposes to permit the below-described construction activities. These activities are likely to adversely affect listed salmonids and their essential fish habitat. Therefore, the COE must consult under ESA section 7(a)(2) and MSA section 305(b) (2).

The COE proposes to permit the construction of a new recreational boat ramp with courtesy float, vehicle and trailer parking, and picnic area. The permit would also cover removal of three existing mooring dolphins, as well as restoration work on a 120 foot section of adjacent river bank. The boat ramp would be installed on a graded, 15% slope, and extend 120 feet waterward. Approximately 60 feet of the ramp would lie below the Mean Low Low Water (MLLW) line. The Port estimates 250 cubic yards of material would be excavated from below the Mean High Water Line (MHWL) and 200 cubic yards of gravel fill would be placed before installing the ramp, to a depth of 10 inches. The ramp would consist of pre-cast concrete planks over the 10-inch gravel base. Riprap would be placed below grade on either side of the ramp to protect from scour and from damage related to vehicles backing off the ramp. Riprap would be installed flush with the river bottom in an effort to recruit sediment cover to minimize loss of benthic habitat. The boat ramp would cover 2880 square feet. A linear bioswale would be constructed in the parking area to store, infiltrate, and release stormwater. A pipe would convey water from the bioswale through an outfall on the adjacent bank, above the Ordinary High Water Line (OHWL). The outfall would be armored with minimal rock to prevent scour and to diffuse flow before it enters the river.

The courtesy float would consist of six, 8-foot by 20-foot sections and would be secured with six, 12-inch steel pilings. The Port will install pilings with a vibratory hammer, and cap them to prevent perching of piscivorous birds. The float would consist of 3-foot wide cedar decking on both sides, with 2-foot wide aluminum grating down the center for light penetration. The float would be installed directly over the east side of the ramp, and would rest on the ramp at low tide. Wooden blocks attached to the bottom of the ramp will allow fish migration under the ramp during low tides. Floatation materials would be encapsulated to prevent break-up and loss of material into the river. The float structure design allows for its removal in anticipation of high flows. Future maintenance would include moving materials deposited on the top of the ramp to the down river side to allow the fluvial process to continue.

Approximately 120 feet of river bank in the project would be re-graded to a 2-to-1 slope, stabilized with Geo-net, and planted with native riparian vegetation. The Port will remove invasive Reed Canary Grass (*Phalaris arundinacea*) Himalayan Blackberry (*Rubis discolor*) and an unidentified non-native bamboo from the riparian area prior to grading and planting. The Port will try to remove three on-site dolphin piles using vibratory equipment. If vibratory equipment fails to remove pilings, they will be cut off three feet below the mudline. Construction would take place during the November 1 to February 28 work window to minimize impacts to migrating juvenile salmonids. A floating silt curtain would be placed around the work area prior to clearing, grading, pile driving, and ramp placement. Equipment used for the project would be steam-cleaned and free of petroleum-based products prior to work in and around the water.

Figure 1. Project Area



Description of the Action Area

An Action Area is defined by the Services' regulations (50 CFR Part 402) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purpose of this Opinion, the action area includes the Columbia River downstream of the construction area to where visible turbidity from the project will no longer be seen, and includes a 100-foot radius around the project area. The proposed project site is the southern edge of Puget Island, at river mile 42 of the Lower Columbia River. The species analyzed in this Opinion use the action area mainly for migration and feeding.

ENDANGERED SPECIES ACT

Biological Opinion

This Opinion presents NOAA Fisheries' review of the status of each evolutionarily significant unit (ESU) considered in this consultation, the environmental baseline for the action area, all the effects of the action as proposed, and cumulative effects. NOAA Fisheries analyzes those combined factors to conclude whether the proposed action is likely to appreciably reduce the likelihood of both the survival and recovery of the affected ESUs. (50 CFR 402.14(g)). If the action under consultation is likely to jeopardize an ESU, NOAA Fisheries must identify any reasonable and prudent alternatives for the action that avoid (50 CFR 402.02).

The standards for determining jeopardy as set forth in section 7(a)(2) of the ESA are defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. The jeopardy analysis involves the initial steps of (1) defining the biological requirements of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the project effects appreciably diminish the species likelihood of survival and recovery. In making this determination, NOAA Fisheries must consider the estimated level of injury and mortality attributable to: (1) collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

For the proposed action, NOAA Fisheries' effects analysis considers the direct or indirect effects of the action on ESUs, and the extent to which the proposed action impairs the function of habitat elements essential for spawning, rearing, feeding, sheltering, or migration of the listed ESUs. NOAA Fisheries analysis considers how these effects influence the likelihood of survival and recovery of ESUs when added to the existing environmental baseline. For the proposed action, critical habitat is currently designated only for UCR chinook and sockeye (*O. nerka*) salmon.

Status of Species and Critical Habitat

After identifying the biological requirements of listed species, NOAA Fisheries must relate the status of species to the baseline condition. To do this, NOAA Fisheries considers the current status of the listed species, taking into account species information, *e.g.,* population size, trends, distribution, and genetic diversity. NOAA Fisheries starts with the information used in its determination to list as threatened, the ESUs considered in this Opinion. NOAA Fisheries also considers any new data relevant to the determination.

For some ESU status discussions, a value (lambda) is used to express the population growth rate. The lambda should be interpreted as the amount by which a population multiplies. If there is no variation in the population size, the lambda will remain constant at one. If the lambda is greater than one, the population is growing. A lambda of less than one signifies population decline. Risk of absolute extinction is also calculated for many ESU's. This factor combines lambda with assumed success of hatchery fish reproducing in the wild, and yields a percent chance of extinction over one hundred years.

Dawley *et al.* (1986) found very low numbers of subyearling and yearling chinook, as well as yearling coho, in shallow water habitat in the lower Columbia estuary during November and December. Based on migratory timing and applicable literature, no other salmonids would be expected to be present in the action area during construction. The other 11 ESUs may experience indirect effects related to use of the facility. Because LCR chinook and coho use the Lower Columbia estuary for rearing during the construction window and may experience impacts related to construction, status of Lower Columbia chinook and coho will be detailed while status of the other 11 ESU's will be abbreviated.

Lower Columbia Chinook

NMFS initially reviewed the status of Lower Columbia River chinook in 1998 and updated its information in that same year (Myers *et al.* 1998). In the 1998 update, the Biological Review Team (BRT) noted several concerns for this ESU. The BRT was concerned that there were very few naturally self-sustaining populations of native chinook salmon remaining in the Lower Columbia River ESU. Naturally reproducing (but not necessarily self-sustaining) populations identified by the BRT were the Lewis and Sandy Rivers 'bright' fall runs and the 'tule' fall runs in the Clackamas, East Fork Lewis and Coweeman Rivers. These populations were identified as the only positive components of the ESU. The few remaining populations of spring chinook salmon in the ESU were not considered to be naturally self-sustaining because of either small size, extensive hatchery influence, or both. The BRT felt that the dramatic declines and losses of spring-run chinook salmon populations in the Lower Columbia River ESU represented a serious reduction in life-history diversity in the region. It was also noted that the presence of hatchery chinook salmon in this ESU posed an important threat to the persistence of the ESU and also obscured trends in abundance of native fish. The BRT also concluded that habitat degradation and loss due to extensive hydropower development projects, urbanization, logging and agriculture threatened the chinook salmon spawning and rearing habitat in the Lower Columbia River. A majority of the 1998 BRT concluded that the Lower Columbia River ESU was likely to become endangered in the foreseeable future.

New data acquired for the BRT (2003) report includes spawner abundance estimates through 2001, new estimates of the fraction of hatchery spawners, and harvest estimates. In addition, the Washington Department of Fish and Wildlife has provided estimates of historical abundance. Information on recent hatchery releases was also obtained. New analyses include the designation of relatively demographically independent populations, recalculation of previous BRT metrics with additional years' data, estimates of median annual growth rate under different assumptions about the reproductive success of hatchery fish, and estimates of current and historically

available kilometers of habitat. This data revealed negative trends in abundance throughout the ESU, as discussed below.

The ESU exhibits three major life history types: fall run ('tules'), late fall run ('brights'), and spring run. The ESU spans three ecological zones: Coastal (rain driven hydrograph), Western Cascade (snow or glacial driven hydrograph), and Gorge (transitioning to drier interior Columbia ecological zones). The fall chinook populations are currently dominated by large scale hatchery production, relatively high harvest and extensive habitat degradation (discussed in previous status reviews). The Lewis River late fall chinook population is the healthiest in the ESU and has a reasonable probability of being self-sustaining. The spring-run populations are largely extirpated as the result of dams which block access to their high elevation habitat. Abundance has declined since the last status review update (1998) and trend indicators for most populations are negative, especially if hatchery fish are assumed to have a reproductive success equivalent to that of natural-origin fish. However, 2001 abundance estimates increased for most LCR chinook populations over the previous few years and preliminary indications are that 2002 abundance also increased (Rawding, personal communication, cited in BRT 2003). Many salmon populations in the Northwest have shown increases over the last few years and the relationship of these increases to potential changes in marine survival are discussed in the introduction to the BRT (2003) report.

Again, a majority (71%) of the 2003 BRT votes for this ESU fell in the 'likely to become endangered' category. Moderately high concerns for all Viable Salmon Population (VSP) elements are indicated by estimates of moderate to moderately high risk for abundance and diversity. All of the risk factors identified in previous reviews were still considered important by the BRT. The Willamette/Lower Columbia River Technical Review Team has estimated that 8-10 historic populations in this ESU have been extirpated, most of them spring-run populations. Near loss of that important life history type remains an important BRT concern. Although some natural production currently occurs in 20 or so remaining populations, only one population exceeds 1,000 spawners. High hatchery production continues to pose genetic and ecological risks to natural populations and to mask their performance. Most populations in this ESU have not seen pronounced increases in recent years.

Lower Columbia Coho

The status of coho salmon for purposes of ESA listings has been reviewed many times, beginning in 1990. The first two reviews occurred in response to petitions to list coho salmon in the Lower Columbia River and Scott and Waddell creeks (central California) under the ESA. The conclusions of these reviews were that NOAA Fisheries could not identify any populations that warranted protection under the ESA in the LCR (Johnson *et al.* 1991 and June 27, 1991, 56 FR 29553), and that Scott and Waddell creeks' populations were part of a larger, undescribed ESU (Bryant 1994; April 26, 1994, 59 FR 21744).

A review of West Coast (Washington, Oregon, and California) coho salmon populations began in 1993 in response to several petitions to list numerous coho salmon populations and NOAA Fisheries' own initiative to conduct a coastwide status review of the species. NOAA Fisheries was unable to identify any remaining natural populations in the Lower Columbia

River/Southwest Washington ESU that warranted protection under the ESA. However, there was sufficient concern regarding the overall health of the ESU and it was added to the candidate list (Weitkamp *et al.* 1995; July 25, 1995, 60 FR 38011).

The coho salmon BRT met in January 2003 to discuss new data received and to determine if the new information warranted any modification of the original BRT conclusions. The BRT's preliminary report (BRT 2003) indicates that the vast majority (over 90%) of the historical populations in the LCR appear to be extirpated, or nearly so. The most serious overall concern is the nearly total absence of naturally produced spawners throughout the ESU, with attendant risks associated with a small population, loss of diversity, and fragmentation and isolation of the remaining naturally produced fish. Twenty-one of 23 historical populations appear to be extirpated and the LCR coho ESU is dominated by hatchery production. There are no populations with appreciable natural production (*Ibid*.). A study by the National Research Council (NRC 1996, cited in BRT 2003) indicated that 97% of 425 fish surveyed on the spawning grounds were first-generation hatchery fish. The BRT concluded that the naturally spawned component of the Lower Columbia River ESU is "in danger of extinction" (BRT 2003).

Snake River Spring/Summer Chinook

For the Snake River Spring/Summer (SRSS) ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 0.97 to 0.93, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to the effectiveness of fish of wild origin (McClure *et al.* 2003). NOAA Fisheries has also estimated median population growth rates and the risk of absolute extinction for seven SRSS index stocks, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (i.e., hatchery effectiveness equals zero), the risk of absolute extinction within 100 years for the wild component ranges from zero for Johnson Creek to 0.78 for the Imnaha River (McClure *et al*. 2000a). At the high end, assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (effectiveness equals 100%), the risk of absolute extinction within 100 years ranges from zero for Johnson Creek to 1.00 for the wild component of the Imnaha River (McClure *et al*. 2000a).

Snake River Fall Chinook

NOAA Fisheries estimates the median growth rate and risk of absolute extinction for the SRF chinook ESU as a whole. Throughout the SRF ESU, lambda ranges from .88 to .95. The success of SRF chinook declines as numbers of hatchery spawning in the wild increases (McClure *et al.* 2003). NOAA Fisheries has also estimated the risk of absolute extinction for the aggregate SRF chinook salmon population, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (i.e., hatchery effectiveness equals zero), the risk of absolute extinction within 100 years is 0.40 (McClure *et al.* 2000a). At the high end, assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (hatchery effectiveness equals 100%), the risk of absolute extinction within 100 years is 1.00 (McClure *et*

al. 2000a). No data exists regarding actual hatchery effectiveness. Thus, the risk of extinction is uncertain, but appears to be high.

Upper Willamette River Chinook

Although the total number of fish returning to the Willamette has been relatively high (24,000), about 4,000 fish now spawn naturally in the ESU, two-thirds of these originate in hatcheries. The McKenzie River supports the only remaining naturally-reproducing population in the ESU (ODFW 1998a).

For the UWR chinook salmon ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 1.01 to 0.63, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).

Upper Columbia Spring Chinook

NOAA Fisheries used population risk assessments for UCR spring-run chinook salmon and steelhead ESUs from the draft quantitative analysis report (QAR) (Cooney 2000). Risk assessments described in that report were based on Monte Carlo simulations with simple spawner/spawner models that incorporate estimated smolt carrying capacity. Population dynamics were simulated for three separate spawning populations in the UCR spring-run chinook salmon ESU, the Wenatchee, Entiat, and Methow populations. The QAR assessments showed extinction risks for UCR spring chinook salmon at 50% for the Methow, 98% for the Wenatchee, and 99% for the Entiat spawning populations. These estimates are based on the assumption that the median return rate for the 1980 brood year to the 1994 brood year series will continue into the future.

Lower Columbia River Steelhead

LCR steelhead were listed as threatened under the ESA on March 19, 1998 (63 FR 13347). Only naturally spawned populations (and their progeny) residing downstream of impassable barriers are listed. The NOAA Fisheries updated draft status review of steelhead (BRT 2003) could not conclusively identify a single population in the ESU that is naturally self-sustaining. Most of the 23 populations (Myers *et al.* 1998) in the ESU are in decline and are at relatively low abundance (no population has a recent mean greater than 750 spawners).

Upper Columbia River Steelhead

The UCR steelhead ESU, listed as endangered on August 18, 1997 (62 FR 43937), includes all natural-origin populations of steelhead in the Columbia River basin upstream from the Yakima River in Washington, to the U.S./Canada border. The Wells Hatchery stock is included among the listed populations. Estimates of historical (pre-1960s) abundance specific to this ESU are available from fish counts at dams. Counts at Rock Island Dam from 1933 to 1959 averaged 2,600 to 3,700, suggesting a pre-fishery run size exceeding 5,000 adults for tributaries above

Rock Island Dam (Chapman *et al*. 1994). Runs may, however, already have been depressed by lower Columbia River fisheries.

Snake River Steelhead

For the SR steelhead ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 1.02 to 0.96, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (McClure *et al.* 2003). NOAA Fisheries has also estimated the risk of absolute extinction for the A- and B-runs, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (i.e., hatchery effectiveness equals zero), the risk of absolute extinction within 100 years is 0.01 for A-run steelhead and 0.93 for B-run fish (McClure *et al.* 2000b). At the high end, assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (hatchery effectiveness equals 100%), the risk of absolute extinction within 100 years is 1.00 for both runs (McClure *et al.* 2000b).

Middle Columbia River Steelhead

The MCR steelhead ESU occupies the Columbia River basin from above the Wind River in Washington and the Hood River in Oregon and continues upstream to include the Yakima River, Washington. Summer steelhead are widespread throughout the ESU, while winter steelhead occur in Mosier, Chenowith, Mill, and Fifteenmile Creeks, Oregon, and in the Klickitat and White Salmon rivers, Washington. The John Day River probably represents the largest native, natural spawning stock of steelhead in the region.

For the MCR steelhead ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 0.88 to 0.75, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).

Upper Willamette River Steelhead

Populations of UWR steelhead are at relatively low abundance, and overall abundance of the ESU has been steeply declining since 1988, with adult returns improving in 2001 and 2002 (NOAA Fisheries 2003). It is uncertain whether the recent increases can be sustained. The previous BRT was concerned about the potential negative interaction between non-native summer steelhead and wild winter steelhead (cited in NOAA Fisheries 2003). The loss of accessto historical spawning grounds because of dams was considered a major risk factor.

Snake River Sockeye

The only remaining sockeye in the Snake River system are found in Redfish Lake, on the Salmon River. The non-anadromous form (kokanee), found in Redfish Lake and elsewhere in the Snake River basin, is included in the ESU. Historically, SR sockeye were abundant in

several lake systems of Idaho and Oregon. However, all populations have been extirpated in the past century, except fish returning to Redfish Lake.

NOAA Fisheries proposed an interim recovery level of 2,000 adult SR sockeye salmon in Redfish Lake and two other lakes in the Snake River basin (Table 1.3-1 in NOAA Fisheries1995b). Low numbers of adult SR sockeye salmon preclude a CRI or QAR-type quantitative analysis of the status of this ESU. Because only 16 wild and 264 hatchery-produced adult sockeye returned to the Stanley basin between 1990 and 2000, however, NOAA Fisheries considers the status of this ESU to be dire under any criteria. Clearly, the risk of extinction is very high.

Lower Columbia Chum

The 2003 Biological Review Team (BRT) provided an updated status review of chum salmon (BRT 2003) and concluded that significant spawning occurs in only two of the 16 historical populations, meaning that 88% of the historical populations are extirpated, or nearly so (*Ibid.*). The populations that remain are small, and overall abundance for the ESU is low. The two extant populations are in the Grays River and the Lower Gorge (including Hardy Creek, Hamilton Creek, Ives Island, and the Multnomah area). Encouragingly, there has been a substantial increase in the abundance of these two populations and the new (or newly discovered) I-205 population. Whether this large increase is due to any recent management actions or simply reflects unusually good conditions in the marine environment is not known at this time, but the result is encouraging, particularly if it were to be sustained for a number of years.

Critical Habitat

The action area is within the boundaries designated of critical habitat (58 FR 68543, Dec. 28, 1993 and 64 FR 57399, Oct. 25, 1999). The proposed action is within designated critical habitat for SR sockeye salmon and SR fall run and spring/summer run chinook salmon. NOAA Fisheries designates critical habitat based on physical and biological features that are essential to the ESA-listed salmon and steelhead. The essential features of designated critical habitat within the action area that support successful migration, smoltification, and rearing for ESA-listed salmon and steelhead include: (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food (primarily juvenile), (8) riparian vegetation, (9) space, and (10) safe passage conditions. The proposed action is likely to affect the following six essential features: Substrate, water quality, water velocity, food, space, and safe passage conditions. Salmon and steelhead without designated critical habitat have the same needs. In this Opinion, NOAA Fisheries presents its determination on whether the project effects to essential features rise to the level of adverse modification or destruction of critical habitat.

Environmental Baseline

This section describes and characterizes the factors affecting the species' environment and critical habitat in the action area. The action area is defined as the area directly or indirectly affected by the project, both upstream and downstream, and is not limited to the site of the proposed activity. The baseline includes the effects of state, local, and private actions that

already occurred in the action area. Unrelated Federal actions that have formal or informal consultation are also part of the environmental baseline.

Within the Lower Columbia River, diking, river training devices (pile dikes and riprap), railroads, and highways have narrowed and confined the river to its present location. Between the Willamette River and the mouth of the Columbia River, diking, flow regulation, and other human activities have resulted in a confinement of 84,000 acres of flood plain that likely contained large amounts of tidal marsh and swamp habitat (Thomas, 1983). The Lower Columbia River's remaining tidal marsh and swamp habitats are in a narrow band along the Columbia River and tributaries' banks and around undeveloped islands.

Ship wake erosion is a problem in the Lower Columbia River corridor. Modifications of shoreline through beach nourishment and armoring has increased in response to ship wake erosion. Aggregate environmental impacts from armoring has subsequently resulted in loss of riparian vegetation, burial of upper beach areas, altered wave interaction with the shoreline, and obstructed the movement of sediment (Shipman 1997). Ship wakes are also known to strand and kill salmonids.

The upland portion of the action area consists of sandy dredge spoils and a narrow, degraded riparian zone. The site lies on the water side of Sunny Sands Road. This road was originally built on a flood control dike to allow for agricultural activities on the island. Materials from Columbia River dredging operations were placed on the water-ward side of Sunny Sands Road, in what were historically intertidal wetlands and shallow sub-tidal aquatic areas. Dredge spoils now form what is the shoreline along the south side of Puget Island. A narrow band of cottonwoods and other riparian species retain minimal functions around the site, including shading and recruitment of large woody debris. However, non-native grasses and shrubs dominate the narrow riparian zone in the immediate project area.

The aquatic portion of action area consists of intertidal sandy beaches, subtidal demersal slope areas, and water column. Both subtidal and intertidal benthic environment consists largely of unproductive coarse dredge spoils and medium-to-coarse alluvial sands. Channel substrate throughout the Lower Columbia River is very similar and consists primarily of sand with some silt, especially in nearshore shallow water areas (COE, 1999). Overall, benthic diversity in the action area is low due to lack of habitat. However, the Lower Columbia River hosts a variety of benthic, epibenthic, and water column organisms. Phytoplankton productivity in the upper estuary is relatively high: estimated productivity exceeds 120 grams of carbon per square meter per year (Fox, *et al*.,1984). Benthic productivity is relatively low in the same area, less than 50 milligrams of carbon per square meter per hour. Benthic invertebrate diversity is low in the area as well, with a small variety of Chironomidea (midges) and other macroinvertebrates (Ibid). Zooplankton densities in the upper estuary are usually low, less than ten animals per square meter (Ibid).

The proposed action would also occur within designated critical habitat for SR fall-run chinook, SR spring/summer-run chinook salmon, and SR sockeye salmon. The biological requirements of migrating salmonids, particularly juveniles, have been severely degraded in the action area, as well as throughout the range of each ESU. Lack of riparian vegetation has depleted both cover

and food source productivity. The absence of large woody debris has likely played a major role in the action area's lack of structure, cover, and benthic diversity. Construction and use of the pier, ramp, float and boat ramp could further degrade baseline conditions for the 12 ESUs in the Lower Columbia. However, most ESUs will pass the action area quickly on their way to the ocean.

Salmon and steelhead habitat in the action area is degraded. The significance of the condition of the action area is relative to species presence, duration of time spent in the action area, life stage, rearing, and migration. Though the action area serves as habitat for a portion of all ESUs addressed in this Opinion, its significance as habitat is greater for LC chinook and LC coho than other Columbia and Snake River species because they are dependent on shallow areas and rear in the LC for a greater length of time. The contribution of the action area to all ESUs is a minimal contributor to status, which is more significantly impacted by harvest levels, hydropower, and the presence of hatchery fish.

The biological requirements are those conditions necessary for chinook, chum, steelhead, coho, and sockeye to survive and recover to such naturally reproducing population levels that protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. Biological requirements include adequate volumes of water, appropriate seasonal flows, high water quality, sufficient food sources, passage to and from spawning areas and refuge areas for rest, shelter from high flows, and predation.

The action area serves as a migration corridor for each species considered in this Opinion. All ESA-listed salmon and steelhead in the Columbia River must pass through lower river and estuary twice: Once as juveniles en route to the Pacific Ocean, and again as adults when they return to spawn. Adult salmon and steelhead returning to the Columbia River migrate throughout the year, with the majority passing by this area from early spring through autumn. Steelhead migrate year-round, with peak smolt out-migration occurring May through June, and peak adult migration occurring January through June. Sockeye salmon migrate April through August, with peak smolt out-migration occurring May through June, and peak adult migration occurring June through July. Chinook salmon migrate year-round, with peak smolt out-migration occurring March through July, and peak adult migration occurring March through October. Chum salmon migrate October through May, with peak smolt out-migration occurring March through May, and peak adult migration occurring October through November. Coho migrate September through November, with peak smolt-out occurring approximately 18 months after emergence, typically April through June.

The action area also provides rearing, foraging, and saltwater acclimation habitat for juvenile salmon and steelhead. Some adult salmon or steelhead may enter the action area during migration, but this is unlikely. In the Columbia system, subyearling chinook are commonly found within a few meters of the shoreline at water depths of less than 1 meter. Although they may migrate through areas with deeper water, they generally remain close to the water surface and near the shoreline during rearing, favoring water no more than 2 meters deep and areas where currents do not exceed 0.3 meters per second. They seek lower energy areas without

waves or currents that require them to expend energy to remain in position and where food is more readily available from invertebrates that live on or near the substrate. Juvenile steelhead tend to be associated with the deeper water, main channel habitats so are not as vulnerable to predation or other shallow-water effects. Based on life-history traits and available data, LC fall-run chinook juveniles and candidate LC coho are reasonably certain to be present in the action area in low numbers during the proposed construction period.

Effects of the Action

In this analysis, the probable direct and indirect effects of the action on the Columbia River salmon and steelhead are identified. The ESA implementing regulations direct NOAA Fisheries to do so "together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02)."

Direct Effects

Direct effects are the direct or immediate effects of the project on the species or its habitat. Direct effects result from the agency action, including the effects of interrelated actions and interdependent actions. Future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not considered in this consultation as they will be the subject of separate consultations under section 7 of the ESA.

Direct effects may occur during the construction of the proposed boat ramp, pier, ramp and float. Short-term water quality degradation related to turbidity from construction may cause some fish to respond by avoiding turbid water. Behavioral patterns including feeding can be disrupted by turbidity. Bilby and Bisson (1982) found that feeding efficiencies of juvenile salmonids is impaired by turbidities above 70 Nephlometric Turbidity Units, well below sublethal stress levels. Juvenile salmon have been shown to avoid areas of unacceptably high turbidities (Servizi 1988). Impacts could also occur during placement and removal of pilings. The use of vibratory equipment and conservation measures should ameliorate negative impacts associated with piling installation and removal.

Benthic invertebrates in shallow water habitats are key food sources for juvenile salmonids during their out-migration (McCabe *et al.* 1996). The 2880 square foot concrete ramp will create a permanent loss of benthic production. Current productivity in the action area is low due to lack of quality substrate and complexity. Given the unproductive nature of the substrate in the action area, reduction in productivity from the project should result in a minimal reduction in prey availability for salmonids within the action area.

The pier, ramp, and float will shade an area within the migratory corridor of juvenile salmonids. Shade may reduce juvenile salmonid prey organism abundance by reducing aquatic vegetation and phytoplankton abundance (Kahler *et al.* 2000, Carrasquero 2001). Glasby (1999) found that epibiotic assemblages on pier pilings at marinas subject to shading were markedly different than in surrounding areas. However, the extent of aquatic macrophytes at the project site is limited and would suffer minimal or no loss. Loss in phytoplankton production from of shading would

be minimal given the size of the structure and the use of a light-penetrating surface. New pilings may eliminate substrate available to benthic aquatic organisms and therefore, eliminate a possible food source for juvenile salmonids in the project area. However, placement of steel pilings and associated structures has also been shown to provide foraging habitat, and may partially compensate for loss of benthic productivity. Carrasquero (2001) citing personal observations, states that juvenile salmonids will feed upon periphyton, insects and macroinvertebrates adhered to dock and pier pilings in the Columbia River.

Studies have shown bass (*Micropterus spp*.) are major predators of juvenile salmonids (Tabor, 1993; Zimmerman, 1999; Beamsderfer, 1991). Smallmouth and largemouth bass have a strong affinity to structures, including piers, docks, and associated pilings (Carrasquero, 2001). In the Columbia system, Bass have been observed foraging and spawning in the vicinity of docks, piers, and pilings (Carrasquero, 2001). Furthermore, Tabor *et al.* (1993) found that smallmouth bass may be a major predator of subyearlings due to their overlap in littoral habitat use. Edwards *et al.* (1983) state that smallmouth bass use all forms of submerged cover and prefer protection from light. Shading can result in a decreased survival rate, or at least promote behavioral changes in various components of the biological community (Carrasquero, 2001). Shade decreases predation avoidance in juvenile salmonids and increases predator success. To minimize the shading effect, light-penetrating grating will be incorporated in the float surface to allow for 60% light penetration in an effort to discourage predatory use.

Low-velocity microhabitat can be created by dock and pier pilings (Carrasquero, 2001). Beamesderfer and Rieman (1988) concluded that northern pikeminnow have the greatest potential for predation of juvenile salmonids because of their preference for in-shore low-velocity microhabitats. Again, the scale of the project and minimization measures including light-penetrating surfaces should keep predation to a minimum.

Indirect Effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action. Indirect effects may include other Federal actions that have not undergone section 7 consultation but will result from the action under consideration. These actions must be reasonably certain to occur, or they are a logical extension of the proposed action (50 CFR 402.02).

Power boating can be deleterious to aquatic environments (Mosisch and Arthington 1998). Public boat ramps and docks are likely to have high levels of boating activity in their immediate vicinity, particularly adjacent to floats. Specifically, docks serve as a mooring area for boats or a staging platform for recreational boating activities. There are several impacts boating activities may have on listed salmonids and aquatic habitat. Directly, engine noise, prop movement, and the physical presence of a boat hull may disrupt or displace nearby fishes (Mueller 1980, Warrington 1994). Boat traffic may also cause: (1) Increased turbidity in shallow waters; (2) uprooting of aquatic macrophytes in shallow waters; (3) aquatic pollution, through exhaust, fuel spills, or release of petroleum lubricants (Warrington 1994, Mosisch and Arthington 1998); (4) reduction of shallow water invertebrate abundance (Carrasquero 2001); or (5) bank erosion from

wakes (Mosisch and Arthington 1998). Boat use in the action area will likely disturb normal behavior patterns of juvenile salmonids. Juveniles will likely avoid the noise, turbidity, and the physical presence of boats. This may disrupt foraging and rearing in the action area, forcing juveniles to swim farther for food, exposing them to fatigue and stress.

Effects on Critical Habitat

The critical habitat analysis determines whether the proposed action will destroy or adversely modify designated critical habitat for listed species by examining any change in the conservation value of the essential features of critical habitat. This analysis does not rely on the regulatory definition of "adverse modification or destruction" of critical habitat recently invalidated the 9th Circuit Court of Appeals (Gifford Pinchot Task Force, et. al., vs. United States Fish and Wildlife Service, No. 03-35279, August 6, 2004). Instead, this analysis focuses on the role critical habitat must play in the action area with respect to the conservation of salmonids. Critical habitat has physical or biological features essential to the conservation of the species. The essential features of critical habitat for the affected ESUs include adequate: (1) Substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions. In the ESA, "conservation" is defined as:

> *"to use and the use of all methods and procedures necessary to bring any endangered species or threatened species to a point at which the measures provided pursuant to [the] Act are no longer necessary [ESA section 3(3)].*

The proposed action is likely to affect the following essential features: water quality, food, space, and safe passage conditions. As discussed in the preceding section, effects on water quality will be temporary, short term, and largely minimized through best management practices in the proposed action. Furthermore, even where habitat function is reduced as such as benthic production and safe passage, the extent of habitat function for these essential elements is still sufficient to support salmonids the salmonid life histories expressed in the action area. The SR sockeye and SR fall and spring/summer chinook in particular, do not rely on this particular are of critical habitat, passing quickly through it during smolt emigration. Adult chinook and sockeye will likely avoid the area altogether, as they prefer deeper main-channel habitats for upstream migration. Thus, while some essential features of critical habitat are affected by the proposed action, they will remain sufficient to contribute to the conservation of the affected ESUs.

Cumulative Effects

Cumulative effects are defined as "those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation" (50 CFR 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they would require separate consultation pursuant to section 7 of the ESA.

Other activities within the watershed have the potential to impact fish and habitat within the action area. Increases in large vessel size and numbers could increase injury and death from

wakes. Scour from wakes will continue to degrade the action area. Future zoning and land use regulations could increase shoreline development, decreasing chances for ecological recovery.

Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities will be reviewed through separate section 7 consultation processes. NOAA Fisheries is not aware of any significant change in non-federal activities that are reasonably certain to occur. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years.

Conclusion

After reviewing the best scientific and commercial information available regarding the current status of the 13 ESUs of listed and candidate salmonids considered in this Opinion, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is NOAA Fisheries' opinion, that the proposed Wahkiakum Port No. 2 Puget Island Boat Ramp will not jeopardize the continued existence of these species. Nor will the proposed action destroy or adversely modify designated critical habitat for SR sockeye, SR fall chinook, and SR spring/summer chinook. Furthermore, this project is not likely to jeopardize the continued existence of candidate LC coho. This conclusion is based on the following: (1) in-water structures are designed in such a way as to minimize the potential for predator usage and allow for juvenile fish passage by the facility, (2) fish exposure to construction impacts will be minimized by the proposed timing of construction work and methodologies, (3) fish reliance on the essential features of critical habitat is very low in the action area, and (4) the proposed plantings and invasive species removal should improve function and value of riparian habitat over time.

Reinitiation of Consultation

Consultation must be reinitiated if the amount or extent of take specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or a new species is listed or habitat is designated that may be affected by the action (50 CFR 402.16).

Incidental Take Statement

Section 9 (a)(1) of the ESA prohibits take of endangered species. Federal regulation pursuant to section 4(d) of the Act extends the take prohibition to threatened species. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect listed species, or to attempt to engage in any such conduct. "Harm" is defined as significant habitat modification or degradation that actually kills or injures listed species by "significantly impairing behavioral patterns such as breeding, spawning, rearing, migrating, feeding, and sheltering" (50 CFR 222.102).

"Incidental take" is take of listed animal species that results from, but is not the purpose of an otherwise lawful activity carried out by the Federal agency or the applicant. Under the terms of

section 7(o)(2), incidental take is not prohibited, provided that such taking is in compliance with the terms and conditions of the incidental take statement required by section 7(b)(4) (16 U.S.C. 1536).

An incidental take statement specifies the effects of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize the impact of the incidental take, and sets forth terms and conditions with which the action agency, its applicant, or both, must comply to implement the reasonable and prudent measures.

Amount or Extent of Take Anticipated

Take is expected to be in the form of harm and harassment and experienced by individuals from all thirteen species, as they migrate past, forage, or rear in the action area. They are expected to be present in the action area during part of the year every year, exposing juveniles in all following years to the permanent changes in their habitat. Because LCR chinook and coho juveniles may be present during construction, they will also be exposed to the short-term effects from construction activities. Therefore, incidental take of LCR chinook and coho juveniles is reasonably certain to occur.

Because the presence of anadromous fish is highly variable over time, and the numbers of fish present in any given area is not strictly related to habitat quality, the amount of take that will occur from this diminution in habitat is difficult, if not impossible to estimate. In instances where the number of individual animals to be taken cannot be reasonably estimated, NOAA Fisheries characterizes the amount as "unquantifiable" and uses a habitat surrogate to identify the extent of anticipated take. The surrogate provides a measure of the anticipated take to be exempted from the prohibition against take which, if exceeded, provides a basis for reinitiating consultation.

The Opinion analyzed the effects that would result from habitat modification decreasing function of near shore habitat that produces foraging opportunities, rearing space, and a migration corridor for the thirteen ESUs in the Columbia System. The extent of take NOAA Fisheries anticipates in this statement is the extent of habitat change that results in the impairment of the ability individual fish within these ESUs to express these behaviors. The areal extent of habitat change affecting these behaviors that is exempted in this statement is will be 2880 square feet of benthic habitat (feeding and rearing), the temporary loss of 120 feet of riparian habitat (feeding), as well as the increase by 120 square-feet of predator habitat beneath the proposed float (migrating). Furthermore, NOAA anticipates an unquantifiable extent of take in the form of harassment by boaters, forcing some juvenile fish to avoid the area. The extent of habitats affected by the action (above) are the thresholds for reinitiating consultation. Should these limits be exceeded during project activities, the reinitiation provisions of this Opinion apply.

Reasonable and Prudent Measures

Reasonable and Prudent Measures (RPMs) are non-discretionary measures to minimize the effects of take. They must be implemented consistently with terms and conditions for the

exemption in section 7(o)(2) to apply. The COE has the continuing duty to regulate the activities covered in this incidental take statement. If the COE and/or its applicant fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. Activities which do not comply with the reasonable and prudent measures will necessitate further consultation. NOAA Fisheries believes that the following reasonable and prudent measure is necessary and appropriate to minimize take of listed fish resulting from implementation of the action:

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate for the COE and its applicants to implement in order to avoid or minimize take of Lower Columbia chinook and coho:

1. Avoid and minimize take from construction effects on habitat.

2. Avoid and minimize take from use of the facility.

3. Monitor progress of the action regarding exempted take.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the action must be implemented in compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure No. 1 (construction), the COE shall ensure that:

A. Silt curtains shall be in place 24 hours prior to any and all in-water work and shall remain for no less than 24 hours after in-water work is completed. To further reduce the potential effects of erosion on water quality, silt curtains should remain in place for as long after in-water work as possible until the completion of project construction.

B. Contractors prepare and have approved, a spill prevention and response plan, prior to construction. Keep spill cleanup materials and trained operators on site at all times during operation.

C. To further reduce the effects of removing aquatic and riparian vegetation, it shall be trimmed and driven over rather than removed and/or grubbed.

D. All construction debris including fuel and oil containers shall be removed from the shoreline area, no equipment shall be abandoned in the shoreline area.

2. To implement reasonable and prudent measure No. 2 (boating), the COE shall ensure that:

A. Educational signs are posted to educate the public about pollution and its prevention. The COE shall require the applicant to post and maintain the following information at the boat ramp:

i. An advisory of the ESA-listed salmonids that are present in the project area.

ii. Notice that the adults and juveniles of these species, and their habitats, are to be protected so that they can successfully migrate, spawn, rear, and complete other behaviors.

iii. Explanation that the lack of necessary habitat conditions may result in a variety of adverse effects including mortality, migration delay, reduced spawning, food loss, reduced growth and reduced populations.

iv. Instruction that all users of the facility are encouraged and required to minimize fuel and oil released into surface waters from bilges and gas tanks; avoid cleaning boats in areas where the water can re-enter the stream; practice sound fish cleaning and waste management; and dispose of all solid and liquid waste produced while boating in a proper facility away from surface waters.

3. To implement reasonable and prudent measure No. 3 (monitoring), the COE shall ensure that:

A. The project area shall be monitored for fish use 24 hours prior to, during construction, and after to construction until the turbidity plume is no longer visible. The monitoring report shall be provided no later than April 30, 2005.

B. NOTICE. If a sick, injured, or dead specimen of a threatened or endangered species is found, the finder must notify the Vancouver Field Office of NOAA Fisheries Law Enforcement at (360) 418-4246. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out the instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Background

The MSA established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (section 305(b)(2));

- NOAA Fisheries must provide conservation recommendations for any Federal or state action that would adversely affect EFH (section 305(b)(4)(A));

Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (section 305(b)(4)(B)).

The term "EFH" means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA section 3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of forage or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

An EFH consultation with NOAA Fisheries is required for any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

Identification of Essential Fish Habitat

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California.

Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the COE.

Proposed Actions

The proposed action and action area are detailed above in Sections 1.2 and 1.3 of this document. The project encompasses habitats that have been designated as EFH for various life history stages of chinook (*O. tshawytscha*) and coho (*O. kisutch*) salmon.

Effects of Proposed Action

The proposed action is described in detail in sections 2.2, 2.2.1, and 2.2.2 above. The proposed action may result in short-term and long-term adverse effects to a variety of habitat parameters. These adverse effects are:

1. Short-term degradation from turbidity and sedimentation.

2. Long-term degradation from the loss 2880 square feet of benthic habitat.

3. Long-term degradation from loss of benthic productivity resulting from shading.

Conclusion

NOAA Fisheries concludes that the proposed action would adversely affect EFH for coho and chinook salmon.

Essential Fish Habitat Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect

EFH. While the proposed action may adversely affect EFH as described above, NOAA Fisheries believes that the conservation measures incorporated into the project, taken with the measures required in Term and Conditions 1 and 2(A)(iv), already minimize these effects to the maximum extent practicable and are sufficient to conserve EFH. Therefore, conservation recommendations are not required.

Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(l).

DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

Section 515 of the Treasury and General Government Appropriations Act of 2001 (Public Law 106-554) ("Data Quality Act") specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the Biological Opinion addresses these DQA components, documents compliance with the Data Quality Act, and certifies that this Biological Opinion has undergone pre-dissemination review.

Utility: This document records the results of two interagency consultations, completed under two separate legal authorities (ESA and MSA). The information presented in this document is useful to two agencies of the Federal government (NOAA Fisheries and Army Corps of Engineers), the residents of Puget Island and Wahkiakum County, Washington, and the general public. These consultations help fulfill multiple legal obligations of the named agencies. The information is also useful and of interest to citizens and residents because it describes the manner in which public trust resources are being managed and conserved. The information presented in these documents and used in the underlying consultations represents the best available scientific and commercial information and has been improved through interaction with the consulting agency.

Integrity: This consultation was completed on a computer system managed by NOAA Fisheries in accordance with relevant information technology security policies and standards set out in Appendix III, "Security of Automated Information Resources," Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

Objectivity: Information Product Category: Natural Resource Plan.

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NOAA Fisheries ESA Consultation Handbook, ESA Regulations, 50 CFR 402.01 et seq., and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) implementing regulations regarding Essential Fish Habitat, 50 CFR 600.920(j).

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the literature cited section. The analyses in this biological opinion/EFH consultation contain more background on information sources and quality. Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NOAA Fisheries staff with training in ESA and MSA implementation, and reviewed in accordance with Northwest Region ESA quality control and assurance processes.

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